We submit the following amended claims:

Claims

What is claimed is:

1. (previously presented) A chimeric molecule comprised of the GD3 binding domain of antibody MB3.6, with variable gene sequences as specified in Fig.4A-C, as a single chain antibody with a (GGSGS)3 linker, the zeta signaling chain of the T cell receptor and an intervening CD8α hinge in which the cysteine residues have been mutated.

2. (previously presented) A chimeric molecule comprised of the PSMA binding domain of antibody 3D8, with variable gene sequences as specified in Fig.4D&E, as a single hchain antibody with a (GGSGS)3 linker, the zeta signaling chain of the T cell receptor and an intervening CD8α hinge in which the cysteine residues have been mutated.

3. (previously presented) A chimeric molecule comprised of the PSMA binding domain of antibody 4D4, with variable gene sequences as specified in Fig.4F&G, as a single chain antibody with a (GGSGS)3 linker, the zeta signaling chain of the T cell receptor and an intervening CD8α hinge in which the cysteine residues have been mutated.

4. (previously presented) A chimeric molecule comprised of the PSMA binding domain of antibody 3E11, with variable gene sequences as specified in Fig.4H&I, as a single chain antibody with a (GGSGS)3 linker, the zeta signaling chain of the T cell receptor and an intervening CD8α hinge in which the cysteine residues have been mutated.

5. (previously presented) Molecules of claim 1-4 in which other signaling chains of T cells or other cell types are substituted, or in which a different hinge molecule or no hinge molecule is substituted, or a combination thereof.

6. (previously presented) Molecules of claim 1-5 in which at least one of the CDRs of the heavy chain and one of the CDRs of the light chain are preserved in a form (e.g., sFv or Fab) that maintains the binding of the antigen, and/or in which the linker is of different composition. For MB3.6, this specification may be met by one CDR of the heavy chain to maintain antigen binding because of the small size of the ganglioside antigen.

7. (previously presented) Molecules of claim 1-6 which has been modified in DNA or protein sequence but which retains the specificity and action of these molecules.

8. (presently amended) The methods of applying molecules of claims 1-7 expressed in T cells or NK cells or other effector cells to treat patients with cancers expressing the GD3 (MB3.6 derivatives) or PSMA antigen (3D8, 4D4, 3E11 derivatives).

9. (presently amended) The methods of applying of molecules of claims 1-7 expressed in T cells or NK cells or other effector cells to treat patients with cancers expressing the GD3 (MB3.6 derivatives) or PSMA antigen (3D8, 4D4, 3E11 derivatives), together with with heterologous constructs to engage additional stimulatory and functional properties of the effector cells to enhance the antitumor therapeutic efficacy.